

CLAIMS

1. A transmission signal production method comprising the steps of multiplying transmission data by coefficients of a predetermined coefficient sequence to produce a plurality of transmission data; adding 0 data of a predetermined length between the plurality of transmission data, produced by multiplying the transmission data by the coefficients, to produce a transmission data sequence; and making the transmission data sequence a transmission signal.

2. The transmission signal production method according to claim 1 wherein said plurality of transmission data, produced by multiplying the transmission data by the coefficients, are delayed longer than a data length of the transmission data and arranged with an interval therebetween and a predetermined number of 0 data are arranged between neighboring transmission data.

3. The transmission signal production method according to claim 1 wherein the plurality of transmission data are produced by multiplying the transmission data, which has a predetermined number of zero data added at an end thereof, by the coefficients of the predetermined coefficient sequence or by adding the predetermined number of 0 data to the end of the transmission data produced by multiplying the transmission data by the coefficients of the predetermined coefficient sequence and

the plurality of transmission data, produced by multiplying the transmission data by the coefficients, are arranged in order of coefficients of a coefficient sequence to produce the transmission data sequence.

4. The transmission signal production method according to

one of claims 1-3 wherein

a plurality of transmission data sequences are produced using different coefficient sequences and

in an arbitrary combination of the plurality of
5 transmission data sequences, a finite number of transmission data in the transmission data sequences has a range in which a non-periodic cross-correlation function is 0.

5. The transmission signal production method according to one of claims 1-4 wherein

10 said coefficient sequence is a coefficient sequence of arbitrary vector rows selected from a complete complementary sequence.

6. The transmission signal production method according to claim 5 wherein said complete complementary sequence is
15 produced from a unitary matrix.

7. A communication method comprising the steps of transmitting the transmission data sequence according to one of claims 1-6; and receiving transmission data via a matched filter corresponding to the coefficient sequence
20 used for producing the transmission data sequence.

8. The communication method according to claim 7 wherein said transmission data sequence is used as a pilot signal for measuring multi-path characteristics and the received signal has the multi-path characteristics of a transmission
25 path.

9. The communication method according to claim 7 wherein a plurality of transmission data sequences are produced using different coefficient sequences and

at least one transmission data sequence selected from
30 said transmission data sequences is used as a pilot signal with other transmission data sequences used as transmission

signals, further comprising the steps of:

finding multi-path characteristics from the reception signal of the pilot signal; and

5 removing the multi-path characteristics from the reception signal of the transmission signal using the multi-path characteristics, which are found, to produce the transmission data.

10 10. A data structure of a transmission signal wherein a plurality of transmission data, produced by multiplying transmission data by coefficients of a predetermined coefficient sequence, are arranged with a predetermined delay time therebetween and 0 data of a predetermined length is added between the transmission data.

15 11. A data structure of a transmission signal produced by the transmission signal production method according to one of claims 1-6.